ABSTRACT

The thesis entitled “SYNTHESIS, CHARACTERIZATION AND STUDY OF ANTICANCER ACTIVITY ON A SERIES OF 3,4-DIHYDRO-PYRIMIDIN-2-ONES AND 2, 5-DISUBSTITUTED PYRIMIDINES” framed with an objective to synthesize and characterize the novel products of dihydropyrimidines and 2,5-substituted pyrimidines.

Facile approaches to the synthesis of target molecules have been developed using readily available 2-chloro-5-bromo pyrimidine as an ideal starting material.

The synthesis of different new derivatives of 3,4-dihydropyrimidones having 5-carboxylate core unit by using ZnCl₂ and TBAB as a catalyst, followed by C-C bonded formation via Suzuki coupling by using 2- benzyloxy substituted -5-bromo pyrimidine with various arylboronic acid in the presence of PdCl₂ (PPh₃)₂ and the synthesis of new derivatives of 2-bezyloxy substituted-5-alkyne substituted pyrimidines via Sonogashira coupling by using 2-benzyloxy substituted -5-bromo pyrimidine with various aryl or aliphatic alkenes in the presence of PdCl₂ (PPh₃)₂.

The structures of all newly synthesized compounds were confirmed by the appropriate spectral data including IR, MASS, ¹H NMR, ¹³C NMR, LCMS and purity of all the compounds was determined by TLC, HPLC and LCMS analysis.

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Chapter-1: General introduction to cancer. Chemotherapy, types of drugs that interact with DNA, current area of work, Structure activity relationship (SAR) study and also appropriate references

Chapter-2: Synthesis, characterization and study of anticancer activity on a series of dihydropyrimidinone derivatives. Review of the literature, experimental section, results and discussion, biological activity, conclusions and also appropriate references.
Chapter-3: Synthesis and characterization of series of novel 2,5-disubstituted pyrimidine derivatives and their anticancer activity. Review of the literature, experimental section, results and discussion, biological activity, Conclusions and also appropriate references.

Chapter-4: Synthesis and characterization of new 2-bezyloxy-5-alkyne substituted pyrimidine derivatives and their anticancer activity. Review of the literature, experimental section, results and discussion, biological activity, conclusions and also appropriate references.

Chapter-5: Summary